

## **Corporate Context for Energy Resources (ER) Programs**

*This section on Corporate Context that is included for the first time in the Department's budget is provided to facilitate the integration of the FY 2003 budget and performance measures. The Department's Strategic Plan published in September 2000 is no longer relevant since it does not reflect the priorities laid out in President Bush's Management Agenda, the 2001 National Energy Policy, OMB's R&D project investment criteria or the new policies that will be developed to address an ever evolving and challenging terrorism threat. The Department has initiated the development of a new Strategic Plan due for publication in September 2002, however, that process is just beginning. To maintain continuity of our approach that links program strategic performance goals and annual targets to higher level Departmental goals and Strategic Objectives, the Department has developed a revised set of Strategic Objectives in the structure of the September 2000 Strategic Plan.*

Energy is the vital force powering business, manufacturing, and movement of goods and services throughout the country. The United States spends over one-half trillion dollars annually for energy, and our economic well-being depends on reliable, affordable supplies of clean energy.

The Energy Resources goal establishes the overarching purpose of the Department's energy programs. Focus of three of the Department's program offices is on energy technology R&D: Office of Fossil Energy (FE), Office of Nuclear Energy, Science and Technology (NE), and the Office of Energy Efficiency and Renewable Energy (EE). In addition to energy technology R&D the Department's Energy Information Administration (EIA) develops and publishes energy statistics and forecasts and the Department also delivers Federal hydroelectric power to consumers through the Power Marketing Administrations (PMAs).

### **Energy Resources (ER) Goal**

**Increase global energy security, maintain energy affordability and reduce adverse environmental impacts associated with energy production, distribution, and use by developing and promoting advanced energy technologies, policies and practices that efficiently increase domestic energy supply, diversity, productivity, and reliability.**

### **Strategic Objectives**

The Energy Resources business line goal is supported by the following strategic objectives. Offices requesting funding to achieve these objectives are identified with each objective:

**ER1:** Use public-private partnerships to promote energy efficiency and productivity technologies in order to enhance the energy choices and quality of life of Americans in 2020 relative to 2000

by: reducing the oil intensity of the U.S. economy by 25 percent (compared to 23 percent without EE programs); reducing energy intensity in the U.S. economy by 32 percent (compared to 28 percent without EE programs); and, reducing the need for additional electricity generating capacity by 10 percent (compared to the case without EE programs). (EE)

- ER2:** Use public private partnerships to bring cleaner, more reliable, and more affordable energy technologies to the marketplace, enhancing the energy choices and quality of life of Americans in 2020 relative to 2000 by: increasing the share of renewable energy to 10% (compared to 8 percent without EE programs); increasing the share of renewable-generated electricity to 12 percent (compared to 8 percent without EE programs); and, doubling the share of capacity additions accounted for by distributed power, which increases distributed generation to 11% of all electricity generation (compared to 8% without EE programs). (EE)
- ER3:** Reduce the burden of energy prices on low-income families by working with state and local agencies to weatherize at least 123,000 homes per year from 2003 through 2005. (EE)
- ER4:** Create public-private partnerships to provide technology to ensure continued electricity production from the extensive U.S. fossil fuel resource, including control technologies to permit reasonable-cost compliance with emerging regulations, and ultimately, by 2015, zero emission plants (including carbon) that are fuel-flexible, and capable of multi-product output and efficiencies over 60% with coal and 75% with natural gas. (FE)
- ER5:** By 2010, add over 1 million barrels a day of domestic oil production and almost 2 TCF per year of additional gas production as a result of technologies and practices from DOE supported research and development. (FE)
- ER6:** Maintain the Strategic Petroleum Reserve in a state of readiness to supply oil at sustained rate of 4.2 million barrels per day for 90 days within 15 days notice by the President. (FE)
- ER7:** Expand the capability of nuclear energy to contribute to the Nation's near and long-term energy needs by investing in our Nation's nuclear R&D infrastructure and promoting advanced research, such that by December 2004: the average capacity of existing U.S. nuclear power plants will increase from 90 to 92 percent; a new nuclear power plant construction project will be initiated in the United States; and a conceptual design will be developed for a nuclear energy system that addresses the technology issues hindering the worldwide expansion of nuclear power. (NE)
- ER8:** Provide national and international energy data, analysis, information and forecasts to meet the needs of the energy decision-makers and the public in order to promote sound policymaking, efficient energy markets and public understanding. (EIA)

**ER9:** Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard. (PMA)

### Budget Summary table

(dollars in thousands)

	FY 2001 Comparable Appropriation	FY 2002 Comparable Appropriation	FY 2003 Request
<i>Office of Energy Efficiency and Renewable Energy (EE) Programs</i>			
§ Energy Conservation excluding weatherization (272) ER1	\$657,178	\$685,470	\$627,204
§ Renewable Energy Resources (271) ER2	370,453	386,406	407,720
§ Energy Conservation - Weatherization (272) ER3	<u>152,664</u>	<u>230,000</u>	<u>277,100</u>
<b>Total EE</b>	<b>1,180,295</b>	<b>1,301,876</b>	<b>1,312,024</b>
<i>Office of Fossil Energy (FE) Programs</i>			
§ Fossil Energy Research and Development (271), Clean Coal Technology (271), and Alternative Fuels (271) ER4 and ER5	545,982	627,626	534,155
§ Naval Petroleum and Oil Share Reserves (271), Elk Hill School Lands Fund (271), and Strategic Petroleum Reserve (274) ER6	<u>187,312</u>	<u>233,525</u>	<u>281,823</u>
<b>Total FE</b>	<b>733,294</b>	<b>861,151</b>	<b>811,509</b>
<i>Nuclear Energy, Science and Technology (NE) Programs</i>			
§ Nuclear Energy Programs (271) ER7	<u>277,105</u>	<u>293,928</u>	<u>250,659</u>
<b>Total NE</b>	<b>277,105</b>	<b>293,928</b>	<b>250,659</b>
<i>Environmental Information Administration (EIA)</i>			
§ National Energy Information System (276) ER8	<u>78,154</u>	<u>81,199</u>	<u>82,801</u>
<b>Total EIA</b>	<b>78,154</b>	<b>81,199</b>	<b>82,801</b>
<i>Power Marketing Administrations (PMA)</i>			
§ Power Marketing Administrations (271) ER9	<u>208,856</u>	<u>214,962</u>	<u>204,750</u>
<b>Total PMA</b>	<b>208,856</b>	<b>214,962</b>	<b>204,750</b>
<b>Total ER</b>	<b>1,477,704</b>	<b>2,753,116</b>	<b>2,666,212</b>

**DEPARTMENT OF ENERGY  
FY 2003 CONGRESSIONAL BUDGET REQUEST  
ENERGY CONSERVATION**

**Proposed Appropriation Language**

For necessary expenses in carrying out energy conservation activities, [\$912,805,000] \$904,304,000 to remain available until expended: *Provided:* That [\$275,000,000] \$315,898,000 shall be for use in energy conservation grant programs as defined in section 3008(3) of Public Law 99-509 (15 U.S.C. 4507), *Provided further:* that notwithstanding section 3003(d)(2) of Public Law 99-509, such sums shall be allocated to the eligible programs as follows:[\$230,000,000] \$277,100,000 for weatherization assistance grants and [\$45,000,000] \$38,798,000 for State energy conservation grants.[ *Provided further, That 50 percent of the funds provided for the Energy Efficiency Science Initiative for fiscal year 2002 and thereafter shall be made available to the Fossil Energy Research and Development account.*] (Department of Interior and Related Agencies Appropriations Act, 2002.)

**EXPLANATION OF CHANGE**

Deletes funding amounts which had specific application to FY 2002 and includes the appropriate funding amounts for FY 2003.

**DEPARTMENT OF ENERGY  
FY 2003 CONGRESSIONAL BUDGET REQUEST  
ENERGY EFFICIENCY AND RENEWABLE ENERGY  
ENERGY CONSERVATION**

**EXECUTIVE BUDGET SUMMARY**

**Mission**

The Mission of the Office of Energy Efficiency and Renewable Energy (EE) is to strengthen America's energy security, environmental quality, and economic vitality through public-private partnerships that:

- # Promote energy efficiency and productivity;
- # bring clean, reliable, and affordable energy technologies to the marketplace; and
- # make a difference in the everyday lives of Americans by enhancing their energy choices and quality of life.

EE's research, development, demonstration, and deployment (RD<sup>3</sup>) portfolio addresses three of America's most pressing energy security concerns; namely, that over half of our nation's transportation system runs on imported oil; that our nation's electricity infrastructure is vulnerable to natural or man-made failures; and, that dramatically fluctuating energy prices and energy trade deficits can harm the economic vitality of our nation. By developing cost-effective energy efficiency and renewable energy technologies, EE programs, in coordination with other public and private sector efforts, can significantly reduce these vulnerabilities in the years and decades ahead.

- # In the transportation sector, EE's portfolio reduces the amount of oil required to keep America moving as well as develops options for clean and domestic alternative sources of transportation energy, such as hydrogen-based fuel cell vehicles. These efforts provide the energy and technological means to substantially reduce dependence on imported oil.
- # In the industry sector, EE's portfolio addresses the energy intensity of the major energy-consuming US manufacturing and processing industries, such as steel, aluminum, chemicals, and agriculture. The specific projects are defined in partnership with industry using collaboratively-developed technology roadmaps and industry vision documents.
- # In the buildings sector, the Department manages R&D and deployment programs to improve the energy efficiency of building materials, designs, and associated heating, cooling, and lighting equipment and other appliances. The programs are customized to the needs of new construction and retrofits of both residential and commercial buildings.
- # EE renewable energy technologies diversify the types of domestic energy sources available to the United States, reducing reliance on any one type of energy. For example, EE efforts helped lower the cost of wind generated electricity by 90 percent over the past two decades, encouraging the development of nearly 1,700 megawatts of new U.S. wind capacity in 2001.

# EE also addresses the reliability of the electricity system and its ability to rebound from adverse events. These efforts include improving the efficiency of the transmission and distribution system, reducing the demand for peak electricity, and facilitating the growth of distributed generation systems. These efforts will not only reduce the strain on over-burdened transmission systems, but also provide local back-up power in the event of an emergency. Additionally, a broad network of on-site power generators is much less susceptible to catastrophic sabotage. Lastly, EE's Federal Energy Management Program (FEMP) contributes to electricity system reliability by coordinating federal facility responses during energy emergencies, avoiding disruptions, and aiding service resumptions. In addition to *increasing U.S. energy security*, EE's portfolio supports the four additional goals of the President's National Energy Policy:

- # ***Modernize energy conservation.*** EE's energy efficiency programs constitute the majority of federal R&D efforts to improve the energy performance and energy productivity of the American economy.
- # ***Modernize our energy infrastructure.*** EE's RD<sup>3</sup> portfolio employs an integrated supply and demand *systems* approach to improving the efficiency and reliability of our electricity and bio-energy infrastructure. EE is also leading federal efforts to examine the potential of a hydrogen-based energy system.
- # ***Increase energy supplies.*** Although renewable energy resources already account for some 7 percent of domestic energy production, America's domestic renewable energy resource base is vast and provides a substantial opportunity for increasing and diversifying domestic production. EE focuses on promoting technological improvements necessary to allow the private sector to develop these domestic resources.
- # ***Accelerate the protection and improvement of the environment.*** Virtually all of EE's programmatic areas provide new and innovative means of protecting and improving the environment, both by optimizing the amount of energy used by our economy and by developing cleaner sources of energy. This progress reduces health harming emissions such as SO<sub>2</sub>, NO<sub>x</sub>, CO, Hg, and particulate matter (PM). It also reduces releases of carbon dioxide.

## **Strategic Objectives**

Three broad strategic objectives underlie EE's support of the Department of Energy's goals and the National Energy Policy, two in Energy Conservation and one in Renewable Energy Resources and related technologies.

### **Energy Conservation Objectives**

**ER1: Energy Efficiency.** Use public-private partnerships to promote energy efficiency and productivity technologies in order to enhance the energy choices and quality of life of Americans in 2020 relative to 2000 by: reducing the oil intensity of the U.S. economy by 25 percent (compared to 23 percent without EE programs); reducing energy intensity in the U.S. economy by 32 percent (compared to 28 percent without EE programs); and reducing the need for additional electricity generating capacity by 10 percent (compared to the case without EE programs).

Energy efficiency contributes not only towards reduced energy costs and enhanced economic competitiveness, but also alleviates some of the environmental impacts associated with energy production. Additionally, improved energy efficiency lessens the strain on the nation's energy infrastructure and our nation's reliance on imported energy resources. This Strategic Objective is supported by the following Program Strategic Performance Goals that address energy savings opportunities found throughout our economy:

## **Buildings**

### **ER1-1: Residential Buildings Integration**

R & D activities will provide the energy technologies and solutions that will catalyze a 20 percent increase in the energy efficiency of both new and existing prototype residential buildings by 2008 relative to the 1996 baseline.

### **ER1-2: Commercial Buildings Integration**

R & D activities will provide the energy technologies and solutions that will catalyze a 15 percent increase in the energy efficiency of both new and existing prototype commercial buildings by 2008 relative to the 1996 baseline.

### **ER1-3: Equipment, Tools, and Materials**

Introduce 5 new ready-for-transition-to-market products by 2008 through component and tool development R & D activities; will issue 13 formal proposals for enhanced product standards and test procedures by 2009.

### **ER1-4: Community Energy Program**

Will retrofit an additional 400 million square feet of commercial and public/institutional space through Rebuild America activities, educate 20 million more consumers through delivery of appropriate energy conservation information, and achieve adoption of upgraded model residential and commercial building energy codes in 20 additional States between 2003 and 2008.

### **ER1-5: State Energy Program**

Will award 280 grants to 56 States and Territories by 2008 to undertake energy technology activities appropriate for States' implementation.

### **ER1-6: Energy Star**

Will achieve a 65 percent market share for ENERGY STAR windows and a 20 percent market share for ENERGY STAR appliances by 2010, compared with approximately 40 percent and 13 percent respectively in 1999.

## **Industry**

### **ER1-7: Specific Vision Industries**

Specific Vision Industries R&D activities will develop a portfolio of energy saving technologies and methods that will catalyze reduced energy use in the eight energy-intensive "Industries of the Future" of 329 trillion Btu of annual savings in 2005, 827 trillion Btu in 2010, and 2,377 trillion Btu in 2020, compared with the EIA conventional technology baseline.

### **ER1-8: Crosscutting Industrial Technologies**

Crosscutting Industrial Technologies R&D activities will develop a portfolio of crosscutting energy saving technologies, methods, and assistance that will catalyze reduced energy use in energy-intensive "Industries of the Future" of 178 trillion Btu of annual savings in 2005, 590 trillion Btu in 2010, and 1,963 trillion Btu in 2020, compared with the EIA conventional technology baseline.

## **Power Technologies**

### **ER1-9: Distributed Energy Resources**

Distributed Energy Resources (DER) R&D activities will increase the share of new DER electricity-generating capacity from 5 percent in 2000 to 7 percent in 2005.

## **Transportation**

### **ER1-10: Hybrid Systems R&D**

Hybrid Systems R&D activities will reduce the production cost of a high power 25kW battery from \$3,000 in 1998 to \$500 in 2010, with an intermediate goal of \$750 in 2006.

### **ER1-11: Fuel Cells R&D**

Fuel Cell R&D activities will reduce the production cost of the 50 kW vehicle fuel cell power system from \$275/kW in 2002 to \$125/kW in 2005 and \$45/kW in 2010.

### **ER1-12: Advanced Combustion Engine R&D**

Advanced Combustion Engine R&D activities will reduce NO<sub>x</sub> emissions in light-duty diesel vehicles from 0.10 grams per mile (g/m) in 1998 to 0.05 g/m in 2006 and 0.03 g/m in 2010 and in heavy duty diesel engines from 4.0 grams per brake horsepower hour (g/bhp-hr) in 1998 to 2.4 g/bhp-hr in 2002 and 0.2 g/bhp-hr in 2005.



**ER1-13: Electric Vehicles R&D**

Electric Vehicles R&D activities will reduce the production cost of a 40kWh lithium ion battery from \$365/kWh in 2001 to \$295/kWh in 2004 and to \$150/kWh in 2010.

**ER1-14: Heavy Vehicle Systems R&D**

Heavy Vehicle Systems R&D activities will reduce the parasitic losses, including aerodynamic drag from 39 percent in 1998 to 24 percent in 2006.

**ER1-15: Fuels Utilization**

Fuel Utilization R&D activities will decrease light truck and passenger vehicle engine-out emissions of particulate matter from 0.1 grams per brake horsepower hour (g/bhp-hr) in 2001 to 0.06 g/bhp-hr by 2008.

**ER1-16: Transportation Materials Technologies**

Transportation Materials Technologies R&D activities will reduce the production cost of carbon fiber from \$12 per pound in 1998, to \$3 per pound in 2006.

**ER1-17: Transportation Technology Assistance**

The Clean Cities program will increase the number of alternative fuel vehicles in the Clean Cities from 110,000 in 2001, to 250,000 in 2007 and to 400,000 in 2010; helping to create successful niche markets that will yield nationwide 1,000,000 alternative fuel vehicles, consuming 1 billion gallons of alternative fuel in 2010.

**Federal Energy Management**

**ER1-18: Federal Energy Management Program**

The Federal Energy Management Program activities will increase the energy security and reduce the environmental impact of the Federal government by decreasing energy intensity in standard Federal facilities by 30 percent by 2005, relative to 1985 levels.

**ER3: Weatherization.** Reduce the burden of energy prices on low-income families by working with State and local agencies to weatherize at least 123,000 homes per year from 2003 through 2005.

The Weatherization program makes a difference in the lives of low-income American families by improving the energy efficiency of their homes and reducing their energy bills. This Strategic Objective is supported by the following Program Strategic Performance Goal:

**ER3-1: The Weatherization Assistance Program**

Will complete weatherization upgrades for 770,900 low-income households from 2003 through 2008.

**Renewable Energy Resources Objectives**

**ER2: Renewable and distributed energy.** Use public-private partnerships to bring cleaner, more reliable, and more affordable energy technologies to the marketplace, enhancing the energy choices and quality of life of Americans in 2020 relative to 2000 by: increasing the share of renewable energy to 10 percent (compared to 8 percent without EE programs); increasing the share of renewable-generated electricity to 12 percent (compared to 8 percent without EE programs); and, doubling the share of capacity additions accounted for by distributed power, which increases distributed generation to 11 percent of all electricity generation (compared to 8 percent without EE programs).

The development of renewable and distributed energy resources provides the means to expand the quantity of energy services provided using domestic supplies while enhancing our environment and improving the reliability and security of our energy infrastructure. The clean and reliable energy sources addressed include renewable energy, fuel cells, and natural gas hybrid systems. This Strategic Objective is supported by the following Program Strategic Performance Goals that address a range of renewable and distributed energy resources for the production of fuels and electricity:

**ER2-1: Biopower**

Biopower R&D activities will increase the testing, verification, and demonstration of the component systems of cost-effective and efficient biomass gasification combined-cycle systems from 0 percent in 2000 to 75 percent in 2006.

**ER2-2: Biofuels**

Biofuels R&D activities will reduce the production cost of cellulose-based ethanol to \$1.20 per gallon by 2005, and to \$1.07 per gallon in by 2010.

**ER2-3: Geothermal Energy**

Geothermal Energy R&D activities will result in twice as many States with geothermal electric power facilities.

**ER2-4: Hydrogen**

Hydrogen R&D activities will demonstrate a conversion technology that will improve the cost of hydrogen production from natural gas from \$3.75 per kilogram in 2000, when produced in large quantities, to \$2.50 per kilogram in 2006.

**ER2-5: Hydropower**

Hydropower R&D activities will ensure commercialization of a fish passage technology capable of reducing turbine-induced fish mortality to 2 percent or less by 2010 in new fish-friendly turbines.

**ER2-6: Wind Energy**

Wind Energy R&D activities will provide the technologies to reduce the cost of wind powered electricity generation in Class 4 wind areas (13 mph annual average) from 5.5 cents per kilowatt-hour in 2002 to 3 cents per kilowatt-hour by 2010.

**ER2-7: Solar Technologies**

Solar Technologies R&D will reduce the price paid for a photovoltaic system by the end user (including operation and maintenance costs) from a median value of \$6.25 per Watt in 2000 to \$4.50 per Watt in 2006 (equivalent to reducing from \$0.25 to \$0.18 per kilowatt hour).

**ER2-8: High Temperature Superconductivity**

High Temperature Superconductivity (HTS) R&D activities will develop HTS wire capable of carrying 100 times the power of comparable copper wire – with zero electrical resistance by 2007.

**ER2-9: Distributed Energy Systems**

Distributed Energy Storage Technology R&D activities will increase the share of new distributed energy electricity-generating capacity from 5 percent in 2000 to 7 percent in 2005. (Distributed energy activities funded by the Energy and Water Development Appropriation are part of a coordinated and complementary effort with distributed energy R&D activities funded by the Interior and Related Agencies Appropriation, which jointly contribute to this goal.)

**ER2-10: International Programs**

International program activities will assist U.S. industry growth in export sales of renewable energy products and services as indicated by increasing PV export sales from approximately 50 MW in 2000 to over 130 MW in 2004.

**ER2-11: Departmental Energy Management Program Team**

The Departmental Energy Management Program Team activities will decrease the energy intensity in DOE facilities by 45 percent by 2005, relative to 1985 levels.

**ER2-12: REPI, other support & implementation**

The Renewable Energy Production Incentive will increase the total number of new renewable energy projects at publicly- and cooperative-owned electric utilities from 0 in 1993 to 75 in 2003.

**Performance Standards:** Progress towards the preceding Program Strategic Performance Goals (PSPGs) will be scored in future color-coded assessments according to the following standards:

- Blue:** Significantly exceeding annual milestones/targets.
- Green:** Effectively meeting (i.e. +/- 5 percent) all annual milestones/targets.
- Yellow:** Effectively meeting all milestones/targets within program control, but behind on elements outside program control; put on “watch” list.
- Red:** Missing a critical milestone.

**Strategy**

EE advances its mission and supports national energy priorities through a mix of short and long term efforts that help determine whether clean and efficient energy technologies are ultimately deployed in the Nation’s energy system. Towards this end, EE seeks to improve energy technologies and practices through RD<sup>3</sup>; formulate policies and standards in the public interest; and, facilitate private sector deployment of advanced energy technologies and practices.

The majority of EE’s activities are in the area of fundamental technology R&D, efforts that are in our nation’s interest but are too risky or long-term to be conducted by the private sector. EE also recognizes, however, that market factors and government policies significantly affect which technologies are purchased by consumers. Consequently, EE’s portfolio includes efforts such as developing transmission interconnection protocols in conjunction with States and working with industry to create minimum appliance standards. The portfolio also provides consumers with a wider array of market opportunities via targeted technical assistance and consumer education, and by leading through example when purchasing energy services for government use (for example, FEMP coordinates President Bush’s Executive Order directing all federal agencies to purchase appliances that meet the “one-watt standard”, wherever cost-effective).

EE's portfolio can evolve in order to meet the changing energy and public policy needs; reflect the opportunity to "graduate" or move-on from successful research efforts; and reduce the commitment of funding in areas with disappointing research results. EE also strives to improve the performance of those efforts that are critical for addressing key public policy needs, but for which management practices may be less than fully effective.

EE used four evaluation and planning tools, two of which are ongoing performance strategies and two of which are new this year to EE's planning and evaluation efforts. These tools were used to inform decision-makers, often when making difficult choices, to ensure that EE's portfolio focuses on the largest areas of need and opportunity and utilizes best practices to achieve those results.

*R&D Investment Criteria.* As part of the President's Management Agenda, the White House developed a set of objective investment criteria for funding federal R&D projects and asked the Department of Energy to pilot this initiative in FY 2003. EE was selected as one of three DOE offices to utilize the President's new criteria. These criteria help focus EE's R&D portfolio on technologies that address national energy policy goals, provide clear public benefits, and would not be developed by the private sector alone. The criteria also address the need for performance-based public private partnerships, well-defined comprehensive program plans, and clear "off ramps" or termination points. These performance-based metrics help ensure that program dollars are used effectively, and that funding is not continued beyond the need for public support.

*Integrated, performance-based benefit estimates.* Past experience has shown that the timeframe necessary to develop energy technological improvements (or R&D outputs) can be years or

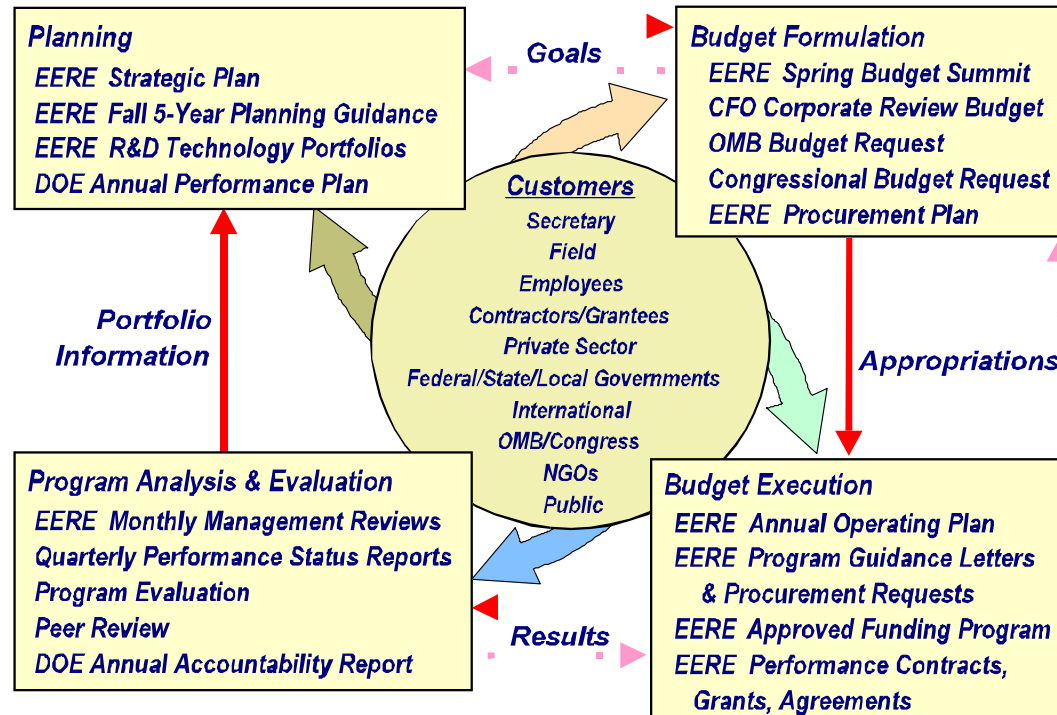
Office of Energy Efficiency and Renewable Energy EERE Programs Projected Benefits by Sector through the Year 2020									
	Total Primary Energy Saved or Produced (quadrillion BTUs)			Energy Cost Savings (\$ billions)			Carbon Reductions (million metric tons)		
	2005	2010	2020	2005	2010	2020	2005	2010	2020
<b>Transportation</b> <i>(equivalent barrels of oil saved, mbpd)</i>	0.03-0.04 <i>(0.06-0.14)</i>	0.5-0.7 <i>(0.3-0.5)</i>	2.8-4.7 <i>(1.5-2.5)</i>	0.8-3.9	9.4-19.8	31.5-61.5	0.7-2.3	8.9-14.4	54.5-92.1
<b>Industry</b>	0.5	1.3-1.4	3.4-4.3	1.8-1.9	5.4-5.5	16.6-18.0	7.9-8.4	23.0-24.5	54.6-82.7
<b>Buildings</b>	0.3	0.9	1.9-2.8	2.2	7.1-9.3	17.1-29.9	4.7-5.1	16.5-17.0	32.7-51.0
<b>Federal</b>	0.02	0.04	0.06	0.1	0.2	0.3	0.3	0.7	1.1
<b>Power</b>	0.3-0.7	1.0-2.2	2.0-4.9	1.6-2.1	4.2-4.8	10.6-15.2	6.5-28.5	20.4-62.5	36.0-122.6
<p><i>Note:</i> Program benefit projections are developed through an impact analysis process undertaken annually by EE, based on assumptions for future energy markets derived from EIA's annual energy outlook. EE's sectors analyze the impacts their programs will have on energy savings, energy cost savings, and carbon reductions if all program goals are met, and future energy markets develop as expected. A sample of program benefit estimates are externally reviewed by Arthur D. Little. An integrated analysis model run by an external contractor controls for interaction effects across sectors.</p> <p>At the sector level, we report a range of estimates with or without these interactions. For example, reductions in required new electricity generation due to energy efficiency improvements would reduce the potential market for a range of electricity supply options. When integrated and non-integrated estimates are virtually the same, no estimate range is shown. Totals for Transportation include impacts from the Biofuels program funded under the Energy and Water Development Appropriation. The Federal Energy Management Program is not included in the integrated analysis and therefore does not have a range of estimates.</p>									

decades long, with additional decades required for markets to realize the benefits (or R&D outcomes) of adopting these technologies. In order to ensure that EE's portfolio is providing clear public benefits that meet energy policy goals, it is necessary to link the annual activities and milestones funded in each year's budget with resulting technology improvements and the likely market impacts of those improvements. Based on EIA forecasts of future energy prices and market conditions, EE programs annually estimate the role of improved technologies in their respective markets. The private consulting firm A.D.Little, Inc. reviews these program estimates.

A version of Energy Information Administration's National Energy Modeling System (NEMs) is used to ensure that underlying technology improvements (for example, overall increases in energy efficiency expected through typical private sector investment in R&D) are not counted as part of the benefits of the technology improvements pursued by EE programs. The model also helps ensure that benefits are not double counted when technologies developed by more than one sector could address the same market need. For the majority of EE R&D efforts pursued through public-private partnerships, the estimated benefits include the combined contributions of all partners. The chart below summarizes the results of EE's *FY03 GPRA Benefits Reports* estimating the energy savings, energy cost savings, and carbon reduction benefits for the requested funding levels for FY 2003 (for the sake of analysis, funding levels are assumed to remain similar in subsequent years).

**Managing for Results.** Excellence in business management is essential to accomplishing EE's mission and objectives. This requires a transparent, integrated, and seamless approach that incorporates a proactive administration of EE functions and activities and underpins the specific planning and evaluation tools described above. The Federal government's fiscal cycles often involve managing up to four budget years at any one time. To effectively meet challenges such as these, and as part of an ongoing effort to "change the way EE does business," EE created the Strategic Management System (SMS) which institutionalizes its processes for planning, budget formulation, budget execution, and program analysis and evaluation (see figure below for more details). Implementing this system is the key to ensuring overall management excellence on par with the technological excellence of EE programs.

## ***EERE STRATEGIC MANAGEMENT SYSTEM***



**Strategic Program Review.** A detailed Strategic Program Review (SPR), undertaken in the summer of 2001 to fulfill a recommendation of the President’s National Energy Policy, provided valuable additional input into the FY 2003 budget development process. The draft SPR identified 20 EE activities that should be terminated because their expected outcomes did not constitute a sufficient return on investment, they lacked public support, or the technologies involved were mature enough to be “graduated” to the private sector.

The draft SPR also identified several activities that were central to the achievement of public benefits, and yet, need closer monitoring to ensure they advance effectively. These include the building sector demonstration and deployment programs and microturbine research efforts. Further, several programs that could achieve significantly greater benefit with additional funding were identified. These programs include R&D on hydrogen, building equipment R&D, fuel cell vehicles, low-wind speed turbines, and peak load reduction activities. Finally, the draft SPR identified a number of “best practices” currently used by some EE programs that could be usefully replicated in other programs. These

“best practices” include competitive solicitations, technology roadmapping, multi-year planning based on critical path milestones, and increasing the number of EE private sector partners.

### **Complementary Appropriations**

EE's budget is appropriated in bills managed by two Congressional Appropriation Subcommittees. The Interior and Related Agencies Appropriations Subcommittee supports EE's energy efficiency efforts under the Energy Conservation appropriation account. In FY 2003 the request in this account totals \$902 million, or 69 percent of EE's budget. Additionally, the Energy and Water Development Appropriations Subcommittee supports EE's work on renewable energy under the Energy Supply appropriation account. In FY 2003, the request in this account totals \$407 million, or 31 percent of EE's budget. Some crosscutting initiatives are funded jointly by both bills.

The complementary nature of these appropriations illustrates a recognition among Congressional appropriators that EE's dual efforts to make America more energy productive while simultaneously increasing and supporting America's domestic energy supply contribute towards the same set of public benefits. In our modern economy, distinctions between energy supply increases and energy efficiency improvements are increasingly blurred. For example:

- # Automotive fuel cells increase energy efficiency while simultaneously providing a new means of operating automobiles on fuels other than petroleum.
- # Buildings designed to include both advanced efficiency and renewable energy features can achieve greater overall energy savings (potentially producing more energy on-site than they use on average over the course of a year).
- # Distributed generation systems provide new means of producing electricity supplies, but also afford improvements in efficiency by reducing transmission line losses and allowing for the capture and use of otherwise wasted heat produced when electricity is generated.
- # Federal procurement can lead by example in purchasing cost-effective energy efficient products and renewable energy power supplies.

Combined, both funding sources contribute to these important benefits and are critical components of the Federal government's strategy of investing in high-risk, high-value RD<sup>3</sup> that is essential to the Nation's future and would not be conducted independently by the private sector.

### **Significant Programmatic Shifts in FY 2003**

The following describes significant programmatic shifts by EE in both its Interior and Related Agencies and Energy and Water Development Appropriation budget requests.



## **Interior and Related Agencies / Energy Conservation Appropriation**

- # *Transportation*: Requests funding for FreedomCAR, a new public-private partnership between the Department of Energy and U.S. automakers to develop cost-effective fuel cell vehicles. FreedomCAR is not a “line item” in EE’s request; rather, it represents a cross-cutting approach to managing multiple related R&D programs that will be coordinated with industry. This approach to funding follows the pattern set by FreedomCAR’s predecessor, the Partnership for a New Generation of Vehicles.
- # *Bioenergy*: Requests funding for bioenergy RD<sup>3</sup> activities to be directed towards a single crosscutting effort. This initiative will integrate programs funded out of both the Interior and the Energy and Water Development appropriations. The portion of funding derived from the Interior account will build upon biomass activities implemented through EE’s industry and transportation programs.

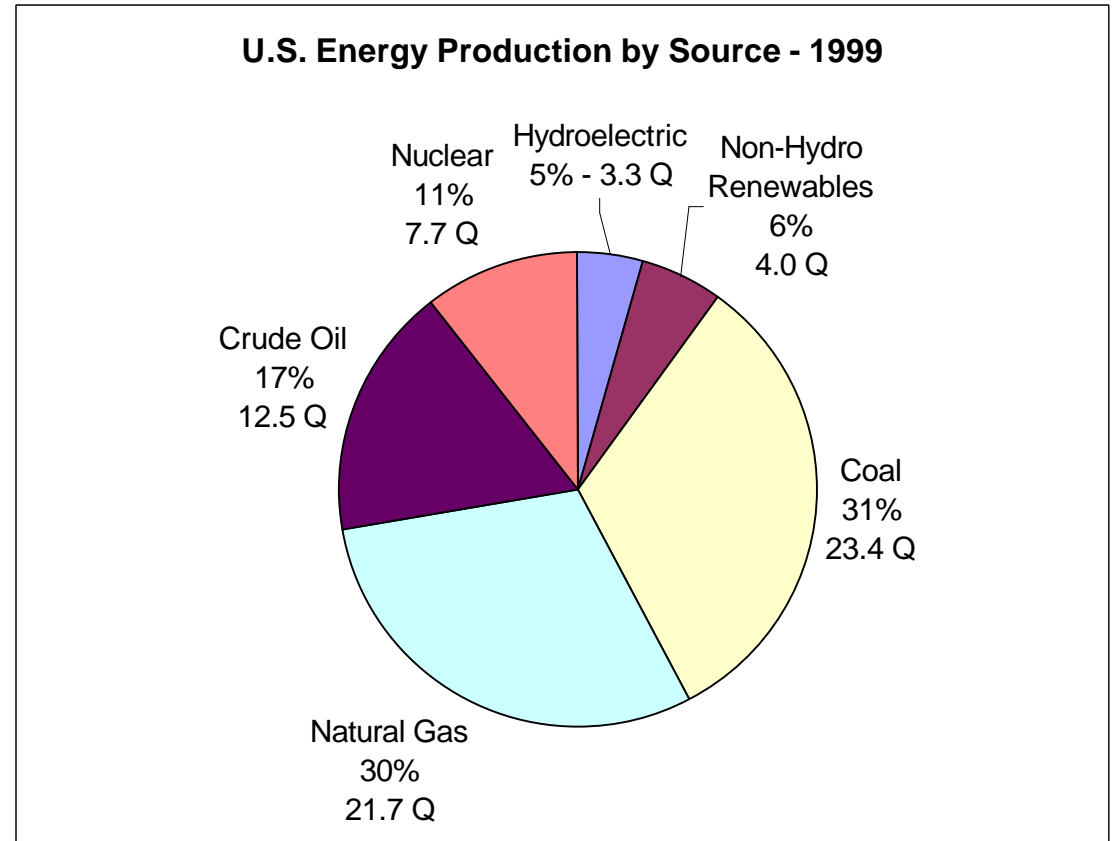
## **Energy and Water Development / Energy Supply Appropriation**

- # *Hydrogen R&D*: Requests significant funding increases towards developing hydrogen as an energy carrier that can provide pollution-free, carbon-free power. Development of this clean and efficient energy source will lessen our dependence on imported fuels in both power and transportation applications. Although the additional funds will support efforts in EE’s power program, the resulting RD<sup>3</sup> will inform and benefit all EE’s programs. A portion of the hydrogen program is counted as part of the FreedomCAR initiative and will be managed to help achieve FreedomCAR’s goals.
- # *High Temperature Superconducting R&D*: Requests significant funding increases for this potential breakthrough technology. High Temperature Superconducting RD<sup>3</sup>, led by EE’s power program, can potentially revolutionize the manner in which electricity is transmitted to end-users and increase electrical capacity, reliability, and efficiency in electric power applications.
- # *Wind Energy R&D*: Requests a shift in wind energy R&D towards the development of low wind speed technologies that will continue to lower generation costs and greatly expand the areas available for installation of wind energy systems.

## **Market Context for Interior and Related Agencies / Energy Conservation Appropriation**

EE’s energy conservation programs are a key part of the Energy Resources business line of DOE’s R&D Portfolio, accounting for approximately one-third of the Energy Resources R&D budget. EE’s energy conservation activities are aimed to fulfill an overarching goal of promoting the development and deployment of energy systems that are clean, efficient, reasonably priced and reliable. In addition, planned efforts are also expected to position the overall United States economy for sustained prosperity by making energy a less constraining resource factor.

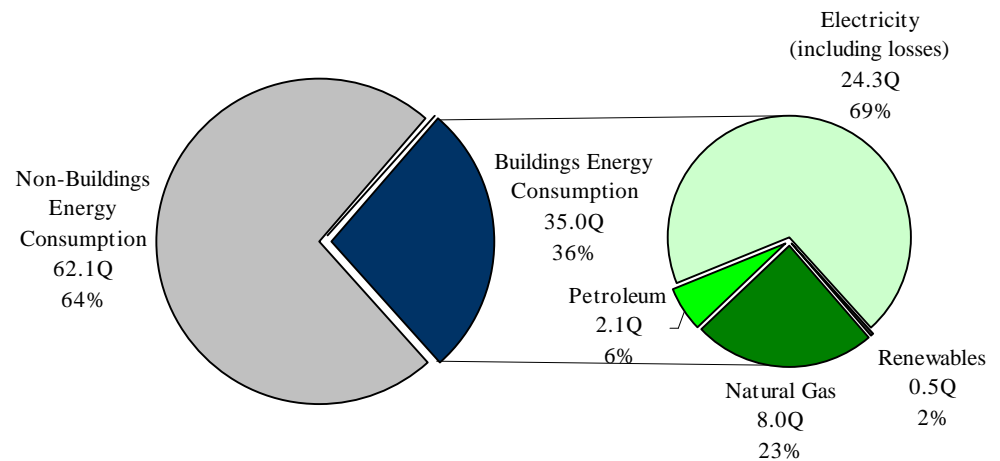
In 1999, the United States consumed over 97 quadrillion British thermal units (quads) of energy, of which 84% came from coal, petroleum and natural gas resources. The majority of the coal is consumed in the electric utility sector to generate electricity for use in the buildings and industrial sectors. The majority of the petroleum is consumed in the transportation sector. In addition, relatively equal portions of natural gas are consumed in the buildings and industrial sectors, with a smaller portion consumed by electric utilities to generate electricity that is sold to the end-use sectors. If domestic energy production only grows at the rate experienced over the last ten years, the May 2001 National Energy Policy (NEP) Report projects the following consumption increases during the next twenty years: oil +33%, natural gas +50% and electricity, of which coal is the dominant resource, +45%. At that point in time, the estimated energy consumption-production gap could be nearly 60 quads, or almost a 50% shortfall. To head off such a grim scenario, the Department's Energy Efficiency Program is structured to address specific needs of four major user sectors: Buildings, Federal Energy Management, Industry and Transportation, as well as a new power delivery system known as Distributed Energy Resources.



### *Buildings*

Residential and commercial buildings consumed 36 percent of the nation's energy in 1999 and utilize almost two-thirds of all the electricity generated. The growth in the economy, as well as the nation's rising population is leading to more, larger, and better equipped homes and commercial buildings, resulting in increasing energy consumption in this sector. Introduction of new energy efficiency technology can have significant economic and environmental benefits. The production of energy consumed in buildings, primarily electricity, represents a major source of acid rain, smog, and greenhouse gas emissions, and includes 47 percent of U.S. sulfur dioxide emissions, 22 percent of nitrogen oxide emissions, and 35 percent of carbon dioxide emissions. In terms of economic impact, Americans spend approximately one-quarter trillion dollars per year to heat, cool, light and operate appliances and other equipment in buildings.

### **Buildings Sector Energy Consumption**



Source: EIA. Monthly Energy Review. Feb. 2001.

### *Federal Energy Management*

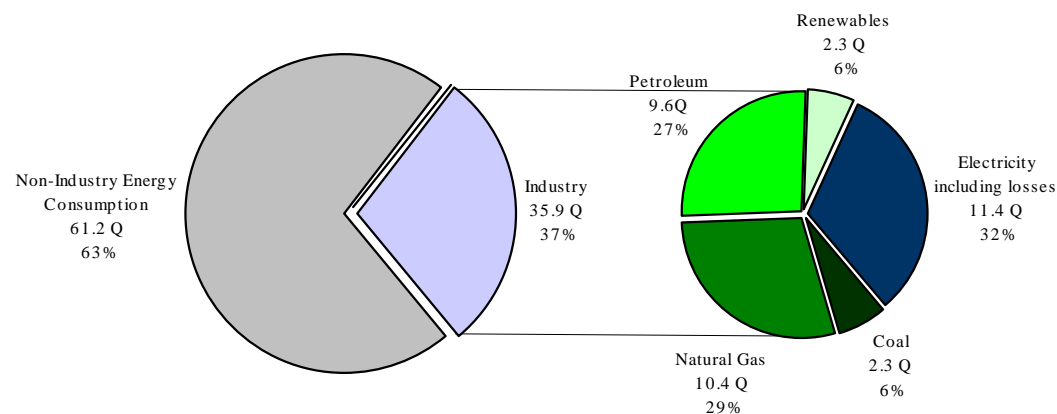
The Federal government also is an important player in achieving overall national energy efficiency. It now has a \$7.4 billion annual energy bill. Over 40% of these expenditures are for heating, cooling and powering approximately one-half million facilities. Executive Order 13123 issued in June 1999 established agency requirements for energy efficiency, renewable energy and water use. The Department's Federal Energy Management Program (FEMP) is facilitating the achievement of goals to reduce facility energy per square foot usage relative to 1985 by 30% in 2005 and by 35% in 2010. In addition, industrial/lab energy consumption is to decrease relative to 1990 by 20% in 2005 and 25% in 2010. In conjunction with the May 2001 National Energy Policy recommendations for increased Federal building conservation, subsequent presidential directions have been announced inspiring Federal agencies to decrease energy, particularly during peak hours, as well as instructing that minimum standby power be consumed by electronic devices.

### Industry

United States industry accounts for 38 percent of domestic energy usage, spending \$110 billion in 1999 for a mix of fuels where natural gas is the largest component. In addition, industrial firms generated 14 billion tons of waste in that same year, of which 200 million tons were hazardous and toxic substances. This waste often imposes expensive clean up and disposal costs. However, advanced technologies, offer the potential to recover the “embedded” energy and materials value from this waste. The Department’s Industry Sector Energy Efficiency Program concentrates on nine individual segments which comprise 27 percent of all energy use. This group consists of agriculture, aluminum, chemicals, forest products, glass, metal casting, mining, petroleum and steel. These industries collectively supply over 90 percent of the U.S. economy’s material inputs for buildings, transportation, communications and manufacturing.

Some principal market factors which retard industrial energy efficiency research and development investments are: narrow profit margins and capital intensive dependence, increasing global market competition from firms which receive support and internal domestic market advantages from their respective governments and volatile energy prices.

## Industrial Sector Energy Consumption



Source: EIA. Monthly Energy Review. Feb. 2001.

### *Transportation*

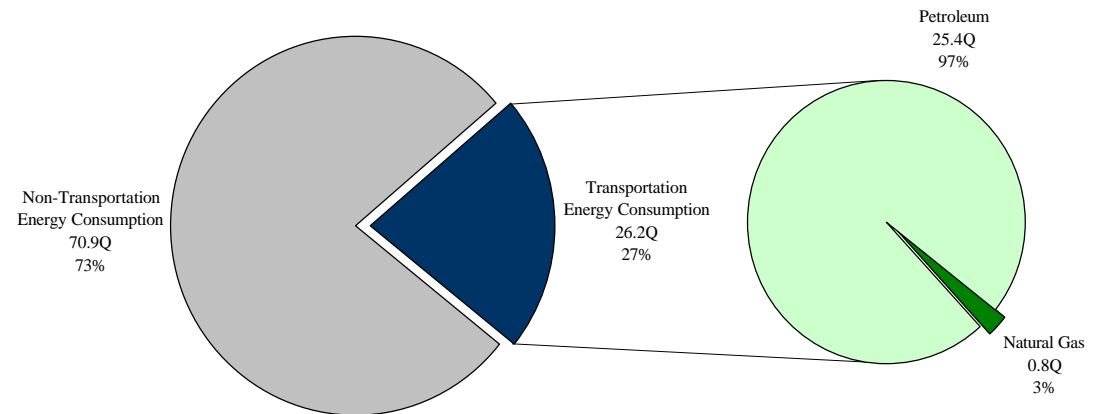
The transportation sector consumed 27 percent of the Nation's energy in 1999. Petroleum is the primary fuel source in this sector, accounting for 97 percent of the fuel consumed. While there have been many improvements in vehicle/engine fuel efficiency, transportation fuel consumption continues to increase due to the growing economy and rise in the number of drivers and miles traveled, as well as the demand for larger vehicles and lower fuel-economy vans, pickup trucks, and sport utility vehicles. The transportation of persons and goods demands 67 percent of this Nation's oil consumption. Our ever-increasing transportation requirements have created a daily imported oil demand of 10 million barrels, or 52 percent of the country's petroleum consumption. The Department's Energy Information Administration (EIA) is projecting 1.8 percent annual growth in transportation energy use through 2020. At the present time, the United States consumes 26 percent of the world's oil while producing only 12 percent of the total global supply. In terms of distribution of world oil reserves, the U.S. has only 2 percent while OPEC nations are projected to possess 77 percent of future sources.

Some of the major market barriers which new transportation technology and fuels must overcome are: low consumer priority on fuel economy, significant business investment required, lack of alternative fuel infrastructure and strong competition among fuel alternative for a relatively small market.

### *Power Technologies*

The Power Technologies component of DOE's Energy Efficiency Program deals with integrating the next generation of energy infrastructure into the industrial, commercial and institutional sectors. The production of electricity at or near a point of use or distribution is known as Distributed Energy Resources (DER). This new energy delivery program is aimed at developing technology and market cooperation needed to achieve reality for such decentralized, but interdependent, energy system. Deregulation of utilities, alternative energy resources and power

## **Transportation Sector Energy Consumption**



Source: EIA. Monthly Energy Review. Feb. 2001.

reliability concerns are driving requirements for Distributed Energy Resource. Planned DER research and development is intended to raise efficiency and reliability performance while reducing cost and emissions. Market factors which Distributed Energy Resources need to confront entail technical, regulatory and institutional considerations. This FY 2003 Power Technologies budget addresses those factors, as well as National Energy Policy recommendations that include distributed energy, combined heat and power (CHP) technology and transmission reliability.

### **Summary of Interior and Related Agencies / Energy Conservation Appropriation**

The Energy Efficiency efforts within DOE are broken down into six main components. Three of those elements are the energy use sectors of buildings, industry and transportation. The Buildings Program addresses energy efficiency on the basis of residential, commercial and institutional structures, as well as generic design tools and materials. A relative large proportion of this budget is also devoted to weatherization financial assistance for low income households. The Industry Program concentrates on nine sizeable energy consuming business segments and crosscutting technologies for improving industrial processes. The Department's Transportation Program efforts are directed toward the mass usage of highway vehicles. This program examines vehicle technologies, materials and fuel utilization. In a somewhat different vein, the Power Technologies Program is aimed at more efficient energy delivery through systems located at or near points of distribution or use. In addition, as a major energy consumer, the Federal government is singled out in this budget to highlight interagency leadership and coordination conducted under the Federal Energy Management Program (FEMP). Finally, executive management, analysis, oversight and field implementation are budgeted within the Energy Conservation Policy and Management Program.

The following FY 2003 Energy Efficiency budget reflects May 2001 National Energy Policy recommendations as well as priorities identified from a recent strategic program review. Emphasis is being placed on: continuing a multi-year weatherization commitment to low income households, energy information for intelligent consumer decision-making, assistance to Federal agencies for better energy management, cooperation with industry to improve processes key for future United States economic health, fuel cell and hybrid powered transportation systems, heavy vehicles and advanced petroleum based fuels, as well as distributed energy resource technologies for the next generation of national infrastructure.

In support of its priorities, EE submits the following FY 2003 Request.

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David K. Garman  
Assistant Secretary for Energy Efficiency and Renewable Energy

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Date

**Energy Efficiency and Renewable Energy Programs  
FY 2003 Congressional Budget Request**

(in thousands of dollars)

<b>Program</b>	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Original Appropriation</b>	<b>FY 2002 Adjustments</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
Building Technology, State and Community Sector . . . . .	\$293,341	\$380,270	\$0	\$380,270	\$408,791
Federal Energy Management Program . . . . .	\$25,661	\$23,300	\$0	\$23,300	\$27,880
Industrial Sector . . . . .	\$145,986	\$148,924	\$0	\$148,924	\$138,359
Transportation Sector . . . . .	\$251,462	\$252,715	\$0	\$252,715	\$222,664
Power Technologies (DER) . . . . .	\$47,346	\$63,846	\$0	\$63,846	\$63,904
Policy and Management . . . . .	\$46,046	\$43,750	\$2,665	\$46,415	\$42,706
Subtotal Energy Conservation . . . . .	\$809,842	\$912,805	\$2,665	\$915,470	\$904,304
Renewable Energy Resources . . . . .	\$370,453	\$385,589	\$817	\$386,406	\$407,720
Total Program Funding . . . . .	\$1,180,295	\$1,298,394	\$3,482	\$1,301,876	\$1,312,024
PODRA and Prior Year Balances . . . . .	\$0	\$0	\$0	\$0	\$0
Transfer from Biomass Energy Development (non add) . . . . .	\$(2,000)	\$0	\$0	\$0	\$0
Total Budget Authority . . . . .	\$1,180,295	\$1,298,394	\$3,482	\$1,301,876	\$1,312,024
Total Excluding Full Funding for Federal Retirement . . . . .	\$1,176,764	\$1,298,394	\$0	\$1,298,394	\$1,308,651

The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$3,531,000 and \$3,482,000 respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$3,373,000. (Note: The data is presented on a comparable basis as if the legislation had been enacted and implemented in FY 2001.)

In addition, reflects FY 2002 Interior and Related Agencies Appropriation (P.L.107-63) language directing that 50 percent of Energy Efficiency Science Initiative funds for FY 2002 (\$6,000,000) and beyond shall be made available to the DOE Fossil Energy Research and Development account.

For Renewable Energy, budget adjustments have been made for full funding of Federal Retirements as well as a \$10,411,000 Energy Supply Account (Energy and Water Development Appropriation) general reduction. Other FY 2001 adjustments were made for establishment of separate Power Technologies (DER) program budget starting in FY 2002 as well as SBIR/STTR transfers.

**Federal Staffing at Field and Headquarters (FTEs)**

	<b>Actual FY 2001</b>	<b>Budgeted FY 2002</b>	<b>Budgeted FY 2003</b>
<b>Energy Efficiency Programs</b>			
Building Technology, State and Community Sector			
Headquarters .....	75	76	73
Federal Energy Management Program			
Headquarters .....	27	27	27
Industry Sector			
Headquarters .....	50	54	53
Idaho Operations Office .....	5	6	1
<b>Subtotal - Industry</b> .....	<b>55</b>	<b>60</b>	<b>54</b>
Transportation Sector			
Headquarters .....	66	62	61
Oak Ridge Operations Office .....	1	1	1
<b>Subtotal - Transportation</b> .....	<b>67</b>	<b>63</b>	<b>62</b>
Power Technologies (DER)			
Headquarters .....	5	5	5
Chicago Regional Office .....	6	3	5
<b>Subtotal - Power Technologies</b> .....	<b>11</b>	<b>8</b>	<b>10</b>
Policy and Management			
Headquarters .....	58	58	61
Golden Field Office .....	36	34	37
Atlanta Regional Office .....	25	25	23
Boston Regional Office .....	17	18	16
Chicago Regional Office .....	17	17	18
Denver Regional Office .....	25	25	25



**Federal Staffing at Field and Headquarters (FTEs)**

	<b>Actual FY 2001</b>	<b>Budgeted FY 2002</b>	<b>Budgeted FY 2003</b>
Philadelphia Regional Office .....	15	18	17
Seattle Regional Office .....	20	21	20
<b>Subtotal - Policy &amp; Management .....</b>	<b>213</b>	<b>216</b>	<b>217</b>
<b>Subtotal FTEs, Energy Efficiency Programs .....</b>	<b>448</b>	<b>450</b>	<b>443</b>
<b>Renewable Energy Resources</b>			
Golden Field Office .....	18	20	18
Idaho Operations Office .....	1	1	1
Headquarters .....	85	95	83
<b>Subtotal, Renewable Energy Resources .....</b>	<b>104</b>	<b>116</b>	<b>102</b>
<b>Total Energy Efficiency and Renewable Energy .....</b>	<b>552 <sup>a</sup></b>	<b>566</b>	<b>545</b>

<sup>a</sup> Actual Full-Time Equivalent (FTE) usage is cited for FY 2001 while budgeted staffing numbers are displayed in the FY 2002 and FY 2003 columns. Budgeted FY 2001 FTE were: Buildings 81, Federal Energy Management Program 32, Industry Sector 66, Transportation 63, Power Technologies 8, Policy and Management 220, Energy Efficiency Programs Subtotal 470, Renewable Subtotal 121 and total 591.

**U.S. Department of Energy**  
**Summary by Appropriation Account**  
(dollars in thousands)

	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Original Appropriation</b>	<b>FY 2002 Adjustments</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
<b>Energy Conservation</b>					
Building Technology, State and Community Sector . . . . .	\$293,341	\$380,270	\$0	\$380,270	\$408,791
Federal Energy Management Program . . . . .	\$25,661	\$23,300	\$0	\$23,300	\$27,880
Industry Sector . . . . .	\$145,986	\$148,924	\$0	\$148,924	\$138,359
Transportation Sector . . . . .	\$251,462	\$252,715	\$0	\$252,715	\$222,664
Power Technologies (DER) . . . . .	\$47,346	\$63,846	\$0	\$63,846	\$63,904
Policy and Management . . . . .	\$46,046	\$43,750	\$2,665	\$46,415	\$42,706
<b>Total Energy Conservation . . . . .</b>	<b>\$809,842</b>	<b>\$912,805</b>	<b>\$2,665</b>	<b>\$915,470</b>	<b>\$904,304</b>
<b>(Total, Energy Conservation - grants) . . . . .</b>	<b>(\$190,580)</b>	<b>(\$275,000)</b>	<b>\$0</b>	<b>(\$275,000)</b>	<b>(\$315,898)</b>
<b>(Total, Energy Conservation R&amp;D) . . . . .</b>	<b>(\$619,262)</b>	<b>(\$637,805)</b>	<b>(\$2,665)</b>	<b>(\$640,470)</b>	<b>(\$588,406)</b>
<b>Total Excluding Full Funding for Federal Retirement</b>	<b>\$807,070</b>	<b>\$912,805</b>	<b>\$0</b>	<b>\$912,805</b>	<b>\$901,651</b>

The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$2,772,000 and \$2,665,000, respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$2,653,000. (Note: The data is presented on a comparable basis as if the legislation had been enacted and implemented in FY 2001.) In addition, reflects FY 2002 Interior and Related Agencies Appropriation (P.L. 107-63) language directing that 50 percent of Energy Efficiency Science Initiative funds for FY 2002 (\$6,000,000) and beyond shall be made available to the DOE Fossil Energy Research and Development account.

Other FY 2001 adjustments were made for separate Power Technologies (DER) program budget starting in FY 2002 as well as SBIR/STTR transfers.

**DEPARTMENT OF ENERGY  
FY 2003 CONGRESSIONAL BUDGET REQUEST  
ENERGY CONSERVATION APPROPRIATION  
(Dollars in Thousands)**

**Energy Efficiency Program  
PROGRAM FUNDING SUMMARY**

	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Original Appropriation</b>	<b>FY 2002 Adjustments</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
<b>Building Technology, State, and Community Sector, Total</b> .....	<b>\$293,341</b>	<b>\$380,270</b>	<b>\$0</b>	<b>\$380,270</b>	<b>\$408,791</b>
Building Research and Standards .....	\$62,862	\$62,392	\$0	\$62,392	\$52,563
Building Technology Assistance .....	\$210,554	\$296,788	\$0	\$296,788	\$342,135
Cooperative Programs with States .....	\$1,964	\$2,000	\$0	\$2,000	\$0
Energy Efficiency Science Initiative .....	\$3,828	\$4,000	\$0	\$4,000	\$0
Management and Planning .....	\$14,133	\$15,090	\$0	\$15,090	\$14,093
<b>Federal Energy Management Program, Total</b> .....	<b>\$25,661</b>	<b>\$23,300</b>	<b>\$0</b>	<b>\$23,300</b>	<b>\$27,880</b>
<b>Industry Sector, Total</b> .....	<b>\$145,986</b>	<b>\$148,924</b>	<b>\$0</b>	<b>\$148,924</b>	<b>\$138,359</b>
Industries of the Future (Specific) .....	\$71,831	\$72,624	\$0	\$72,624	\$71,615
Industries of the Future (Crosscutting) .....	\$59,737	\$60,900	\$0	\$60,900	\$57,109
Cooperative Programs with States .....	\$1,964	\$2,000	\$0	\$2,000	\$2,000
Energy Efficiency Science Initiative .....	\$3,828	\$4,000	\$0	\$4,000	\$0
Management and Planning .....	\$8,626	\$9,400	\$0	\$9,400	\$7,635
<b>Transportation Sector, Total</b> .....	<b>\$251,462</b>	<b>\$252,715</b>	<b>\$0</b>	<b>\$252,715</b>	<b>\$222,664</b>
Vehicle Technologies R&D .....	\$157,061	\$155,122	\$0	\$155,122	\$149,280
Fuels Utilization R&D .....	\$23,134	\$25,908	\$0	\$25,908	\$18,483
Materials Technologies .....	\$41,547	\$40,293	\$0	\$40,293	\$29,800

**PROGRAM FUNDING SUMMARY - Energy Efficiency Program (cont.)**

	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Original Appropriation</b>	<b>FY 2002 Adjustments</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
Technology Deployment .....	\$14,776	\$15,160	\$0	\$15,160	\$15,000
Cooperative Programs with States .....	\$1,964	\$2,000	\$0	\$2,000	\$0
Energy Efficiency Science Initiative .....	\$3,828	\$4,000	\$0	\$4,000	\$0
Management and Planning .....	\$9,152	\$10,232	\$0	\$10,232	\$10,101
<b>Power Technologies (DER) .....</b>	<b>\$47,346</b>	<b>\$63,846</b>	<b>\$0</b>	<b>\$63,846</b>	<b>\$63,904</b>
<b>Policy and Management, Total .....</b>	<b>\$46,046</b>	<b>\$43,750</b>	<b>\$2,665</b>	<b>\$46,415</b>	<b>\$42,706</b>
<b>Summary:</b>					
R&D .....	\$619,262	\$637,805	\$2,665	\$640,470	\$588,406
Energy Conservation Grants .....	\$190,580	\$275,000	\$0	\$275,000	\$315,898
<b>Subtotal Energy Conservation Appropriation .....</b>	<b>\$809,842</b>	<b>\$912,805</b>	<b>\$2,665</b>	<b>\$915,470</b>	<b>\$904,304</b>
Transfer from Biomass Energy Development (Non-add) .....	(\$2,000)	—	—	—	—
<b>Total Energy Conservation Appropriation .....</b>	<b>\$809,842</b>	<b>\$912,805</b>	<b>\$2,665</b>	<b>\$915,470</b>	<b>\$904,304</b>
<b>Total Excluding Full Funding for Federal Retirement .</b>	<b>\$807,070</b>	<b>\$912,805</b>	<b>\$0</b>	<b>\$912,805</b>	<b>\$901,651</b>

Note: The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$2,772,000 and \$2,665,000, respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$2,653,000. (Note: The data is presented on a comparable basis as if the legislation had been enacted and implemented in FY 2001.) In addition, reflects FY 2002 Interior and Related Agencies Appropriation (P.L.107-67) language directing that 50 percent of Energy Efficiency Science Initiative funds for FY 2002 (\$6,000,000) and beyond shall be made available to the DOE Fossil Energy Research and Development account. Other FY 2001 adjustments were made for establishment of separate Power Technologies (DER) program budget starting in FY 2002 as well as SBIR/STTR transfers.

**PROGRAM FUNDING SUMMARY - Energy Efficiency Program (cont.)**

<b>Program/Subprogram/Activity</b>	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
<b>Building Technology, State, and Community Sector</b>			
Building Research and Standards .....	\$62,862	\$62,392	\$52,563
Technology Road Maps and Competitive R&D .....	\$6,761	\$6,857	\$2,357
Residential Buildings Integration .....	\$11,917	\$12,478	\$13,478
Commercial Buildings Integration .....	\$4,505	\$4,510	\$5,010
Equipment, Materials, and Tools .....	\$39,679	\$38,547	\$31,718
Building Technology Assistance .....	\$210,554	\$296,788	\$342,135
Weatherization Assistance Program .....	\$152,664	\$230,000	\$277,100
State Energy Program .....	\$37,916	\$45,000	\$38,798
Community Energy Program .....	\$17,805	\$18,788	\$20,037
Energy Star Program .....	\$2,169	\$3,000	\$6,200
Cooperative Programs with States .....	\$1,964	\$2,000	\$0
Energy Efficiency Science Initiative .....	\$3,828	\$4,000	\$0
Management and Planning .....	\$14,133	\$15,090	\$14,093
Evaluation and Planning .....	\$4,910	\$4,528	\$4,528
Program Direction .....	\$9,223	\$10,562	\$9,565
<b>Total, Building Technology, State, and Community Sector .....</b>	<b>\$293,341</b>	<b>\$380,270</b>	<b>\$408,791</b>
<b>Federal Energy Management Program</b>			
Project Financing .....	\$9,667	\$8,700	\$8,690
Technical Guidance and Assistance .....	\$7,896	\$7,000	\$11,042
Planning, Reporting, and Evaluation, Technical Management Support .....	\$3,664	\$3,200	\$3,693

**PROGRAM FUNDING SUMMARY - Energy Efficiency Program (cont.)**

<b>Program/Subprogram/Activity</b>	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
Program Direction .....	\$4,434	\$4,400	\$4,455
Total, Federal Energy Management Program .....	\$25,661	\$23,300	\$27,880
Industry Sector			
Industries of the Future (Specific) .....	\$71,831	\$72,624	\$71,615
Forest and Paper Products Vision .....	\$11,799	\$11,827	\$11,827
Steel Vision .....	\$10,365	\$10,329	\$10,329
Aluminum Vision .....	\$10,876	\$8,103	\$8,103
Metal Casting Vision .....	\$5,559	\$5,357	\$5,357
Glass Vision .....	\$4,582	\$4,572	\$4,572
Chemicals Vision .....	\$12,113	\$14,458	\$14,458
Petroleum Refining Vision .....	\$2,609	\$2,800	\$0
Mining Vision .....	\$3,517	\$5,119	\$5,119
Agriculture Vision .....	\$6,590	\$7,259	\$8,259
Supporting Industries, Technical Management Support .....	\$3,821	\$2,800	\$3,591
Industries of the Future (Crosscutting) .....	\$59,737	\$60,900	\$57,109
Engineered Ceramics/CFCC's .....	\$5,853	\$0	\$0
Advanced Industrial Materials] .....	\$5,826	\$0	\$0
Industrial Materials for the Future .....	\$0	\$13,698	\$12,698
Combustion Systems .....	\$14,387	\$18,391	\$15,600
Sensors and Controls .....	\$3,763	\$3,774	\$3,774
NICE3 .....	\$5,092	\$2,736	\$2,736
Inventions and Innovation .....	\$4,798	\$4,372	\$2,372
Industrial Technical Assistance .....	\$6,762	\$14,929	\$15,929
Motor and Compressed Air .....	\$7,020	\$0	\$0

**PROGRAM FUNDING SUMMARY - Energy Efficiency Program (cont.)**

<b>Program/Subprogram/Activity</b>	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
Steam .....	\$1,234	\$0	\$0
Technical/Program Management Support .....	\$5,002	\$3,000	\$4,000
Cooperative Programs with States .....	\$1,964	\$2,000	\$2,000
Energy Efficiency Science Initiative .....	\$3,828	\$4,000	\$0
Management and Planning .....	\$8,626	\$9,400	\$7,635
Evaluation and Planning .....	\$600	\$730	\$730
Program Direction .....	\$8,026	\$8,670	\$6,905
<b>Total, Industry Sector .....</b>	<b>\$145,986</b>	<b>\$148,924</b>	<b>\$138,359</b>
<b>Transportation Sector</b>			
Vehicle Technologies R&D .....	\$157,061	\$155,122	\$149,280
Hybrid Systems R&D .....	\$48,979	\$46,606	\$42,600
Fuel Cell R&D .....	\$40,663	\$41,925	\$50,000
Advanced Combustion Engine R&D .....	\$52,205	\$49,092	\$40,680
Cooperative Automotive Research for Advanced Technologies	\$1,500	\$500	\$1,000
Electric Vehicle R&D .....	\$8,820	\$7,019	\$3,500
Heavy Vehicle Systems R&D .....	\$4,894	\$9,980	\$11,500
Fuels Utilization R&D .....	\$23,134	\$25,908	\$18,483
Advanced Petroleum Based Fuels .....	\$10,773	\$11,928	\$13,658
Alternative Fuels .....	\$12,361	\$13,980	\$4,825
Materials Technologies .....	\$41,547	\$40,293	\$29,800
Propulsion Materials Technology .....	\$8,848	\$8,962	\$7,000
Lightweight Materials Technology .....	\$27,198	\$25,731	\$18,800
High Temperature Materials Laboratory .....	\$5,501	\$5,600	\$4,000
Technology Deployment .....	\$14,776	\$15,160	\$15,000

**PROGRAM FUNDING SUMMARY - Energy Efficiency Program (cont.)**

<b>Program/Subprogram/Activity</b>	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
Clean Cities .....	\$9,768	\$11,560	\$9,000
Testing and Evaluation .....	\$2,887	\$1,800	\$3,000
EPACT Replacement Fuels Program .....	\$1,281	\$1,000	\$2,000
Advanced Vehicle Competitions .....	\$840	\$800	\$1,000
Cooperative Programs with States .....	\$1,964	\$2,000	\$0
Energy Efficiency Science Initiative .....	\$3,828	\$4,000	\$0
Management and Planning .....	\$9,152	\$10,232	\$10,101
Technology Assessment and Analysis .....	\$1,700	\$1,700	\$2,000
Program Direction .....	\$7,452	\$8,532	\$8,101
<b>Total, Transportation Sector</b>	<b>\$251,462</b>	<b>\$252,715</b>	<b>\$222,664</b>
<b>Power Technologies (DER)</b>			
Distributed Energy Resources	\$45,899	\$61,896	\$62,284
Distributed Generation Technology Development .....	\$43,903	\$55,896	\$42,896
End-Use Systems Integration and Interface .....	\$1,996	\$6,000	\$19,388
Management & Planning .....	\$1,447	\$1,950	\$1,620
<b>Total, Power Technologies (DER)</b>	<b>\$47,346</b>	<b>\$63,846</b>	<b>\$63,904</b>
<b>Policy and Management</b>			
Headquarters .....	\$19,639	\$20,000	\$19,326
Salaries and Related Expenses .....	\$9,262	\$9,415	\$9,400
Contractual Services .....	\$10,377	\$10,585	\$9,926
Golden Field Office .....	\$5,768	\$6,165	\$6,165
Salaries and Related Expenses .....	\$3,315	\$3,960	\$3,697
Contractual Services .....	\$2,453	\$2,205	\$2,468
Regional Offices .....	\$16,489	\$18,050	\$15,015



**PROGRAM FUNDING SUMMARY - Energy Efficiency Program (cont.)**

<b>Program/Subprogram/Activity</b>	<b>FY 2001 Comparable Appropriation</b>	<b>FY 2002 Comparable Appropriation</b>	<b>FY 2003 Request</b>
Salaries and Related Expenses .....	\$12,428	\$13,323	\$11,429
Contractual Services .....	\$4,061	\$4,727	\$3,586
International Market Development Program .....	\$2,600	\$650	\$650
Information and Communications Program .....	\$1,550	\$1,550	\$1,550
<b>Total, Policy and Management .....</b>	<b>\$46,046</b>	<b>\$46,415</b>	<b>\$42,706</b>
<b>Summary:</b>			
R&D .....	\$619,262	\$640,470	\$588,406
Energy Conservation Grants .....	\$190,580	\$275,000	\$315,898
<b>Subtotal Energy Conservation Appropriation .....</b>	<b>\$809,842</b>	<b>\$915,470</b>	<b>\$904,304</b>
Transfer from Biomass Energy Development (Non-add) .....	(\$2,000)	\$0	\$0
<b>Total Energy Conservation Appropriation .....</b>	<b>\$809,842</b>	<b>\$915,470</b>	<b>\$904,304</b>
<b>Total Excluding Full Funding for Federal Retirement .....</b>	<b>\$807,070</b>	<b>\$912,805</b>	<b>\$901,651</b>

The FY 2001 and FY 2002 columns of the FY 2003 Congressional Request include funding in the amount of \$2,772,000 and \$2,665,000, respectively, for the Government's share of increased costs associated with pension and annuitant health care benefits. These funds are comparable to FY 2003 funding of \$2,653,000. (Note: The data is presented on a comparable basis as if the legislation had been enacted and implemented in FY 2001. In addition, reflects FY 2002 Interior and Related Agencies Appropriation (P.L.107-63) language directing that 50 percent of Energy Efficiency Science Initiative funds for FY 2002 (\$6,000,000) and beyond shall be made available to the DOE Fossil Energy Research and Development account.

Other FY 2001 adjustments were also made for establishment of a separate Power Technologies (DER) program budget starting in FY 2002 as well as SBIR/STTR transfers.